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संस्थापक अध्यक्ष
कोयला, भारत
पिनकोड 768001
मोबा. 9861110

No. GM (CMC)/SOR/2018/ 1134

DL 25.08.2018

To,
The General Manager,
Argada/Barka-Sayal/Kuju/Hazaribagh/Rajrappa/
Dhori/B&K/Kathara/NK/Piparwar/Rajhara/Magadh & Amrapali

Dear Sir,

Sub: Schedule of Rates (SOR) – 2018 for loading and transportation of coal, Hiring of Equipments for Removal of OB, Extraction of coal, wagon loading etc- Clarifications regarding.

This has reference to communication of SOR 2018 as above vide no. GM (CMC)/SOR/2018/1113 dated 20.08.2018.

In the SOR 2018, title of the item no. 5(d) of SOR is about 'Additional rate of coal transportation (Surface to surface) on account of Kutcha/narrow road.' However, description of this item did not mention the term 'narrow road'. Further, definition of 'narrow road' was required in the qualifying criteria for application of additional payment clause due to hindrances in coal transportation.

As per clarifications received from NPC on 25.08.2018, the definition of narrow road may be treated as under:

Quote:

'Any road having a width less than 3.0 metre will be treated as narrow road while roads of width 3.0 metre or more will not be treated as narrow road.'

The word narrow road will be added in description.

Un-Quote:

Accordingly, the description of item 5(d) may be read as: "Additional rates for transportation of coal by contractor's tipping trucks on routes having Kutcha road/narrow road in transportation route other than siding and coal dump portion."

The above clarification may be read in reference to the SOR 2018 communicated vide letter no. 1113 dated 20.08.2018.

Yours faithfully,

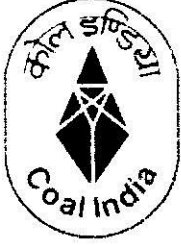
General Manager (C M C)

Copy for kind information to:

1. D(T) Opr., CCL, Ranchi.
2. D(F), CCL, Ranchi.
3. D(P), CCL, Ranchi.
4. D(T)P&P, CCL, Ranchi.
5. GM/TS to CMD, CCL, Ranchi
6. GM(Vigilance), CCL, Ranchi.

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3. GM (F), FPC, CCL, Ranchi.
4. GM (IED), CCL, Ranchi.
5. GM (System), CCL, Ranchi: To upload the letter in reference to SOR-2018 uploaded on CCL website.
6. Chief Manager(F)Opr., CCL
7. All executives of CMC Deptt.



CENTRAL COALFIELDS LIMITED

(A Subsidiary of Coal India Limited)

(A Mini Ratna Company)

DARBHANGA HOUSE,

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Contract Management Cell (CMC)

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सेंट्रल कोलफील्ड्स लिमिटेड

कोल इंडिया लिमिटेड की सहायक कंपनी

(एक मिनीरत्न कंपनी)

दरभंगा हाउस, राँची- 834029

संविदा प्रबंधन प्रकोष्ठ

फोन: 0651-2360219,

फैक्स: 2361120

No GM(CMC)/SOR/2018/1113

Dt. 20.08.2018

To,

The General Manager,

Argada/Barka-Sayal/Kuju/Hazaribagh/Rajrappa/

Dhori/B&K/Kathara/NK/Piparwar/Rajhara/Magadh & Amrapali

Dear Sir,

Sub: Schedule of Rates (SOR) – 2018 for loading and transportation of coal, Hiring of Equipments for Removal of OB, Extraction of coal, wagon loading etc.

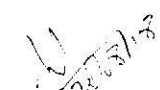
This is to communicate the approval of CCL Board of Directors in its 462nd Meeting held on 16.08.2018 vide Item No. 3(1) of the Schedule of Rates (SOR)-2018 as above.

The Board after detailed deliberations approved the provisions of modified SOR placed before the Board with some amendments. After incorporation of the same, final abstract of SOR has been received from National Productivity Council, Patna on 20.08.2018 and the same is being enclosed herewith for further needful

The SOR -2018 will supersede SOR-2013 for loading and transportation.

You are requested to process all the estimate proposals based on SOR -2018

Yours faithfully,


General Manager (C M C)

Encl: as above

Copy for kind information to

1. Director(T)Opr., CCL, Ranchi
2. D(F), CCL, Ranchi
3. D(P), CCL, Ranchi
4. Director(T)P&P, CCL, Ranchi
5. GM/TS to CMD, CCL, Ranchi

Copy to

1. Co. Secy., CCL, Ranchi
2. GM(Opr.), CCL, Ranchi
3. GM(F), FPC, CCL, Ranchi
4. GM(IED), CCL, Ranchi
5. GM(System), CCL, Ranchi: To upload the SOR-2018 on CCL website
6. Chief Manager(F)Opr., CCL
7. All executives of CMC Deptt.

ABSTRACT

Confidential

(Date : 20.08.2018)

SCHEDULE OF RATES (2018)

For

Loading, Transportation of coal,
Hiring of equipments for removal
of OB, Extraction of coal etc. Through Civilian Contractors



CONTRACT MANAGEMENT CELL
CENTRAL COALFIELDS LTD.

RANCHI

Prepared by



National Productivity Council

Boring Road Crossing, Patna 800 001

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E-Mail: patna@npcindia.gov.in ; npcpatna@gmail.com

url: www.npcindia.gov.in

CENTRAL COALFIELDS LIMITED

SCHEDULE OF RATES (2018) FOR MINING SERVICES (LOADING,TRANSPORTATION OF COAL, HIRING OF EQUIPMENTS FOR REMOVAL OF OB,EXTRACTION OF COAL ETC.) THROUGH CIVILIAN CONTRACTORS.

Item No.	ITEM and DESCRIPTION OF ITEM	Lead(Km)	unit	Rate (Rs./unit)
1 (a)	Hiring of HEMM for removal of Over Burden (OB) and transportation			
	HARD OB	0-1	Cu.m	70.44
	Hiring of HEMM for removal of OB for all kinds of strata requiring blasting <u>including blast hole drilling & blasting</u> , excavation of OB strata, loading & transportation of excavated OB, dumping in dump yard, dozing, grading, leveling at dump sites including face & other specified places, preparation & maintenance of haul roads & dewatering of working faces, water sprinkling on haul road as per instruction of the Engineer-in-charge	1-2	Cu.m	81.36
		2-3	Cu.m	93.74
		3-4	Cu.m	104.70
		4-5	Cu.m	114.69
1 (b)	COMPOSITE OB	0-1	Cu.m	65.18
	Hiring of HEMM for removal of OB for <u>all kinds of soil/ rocks</u> (consisting of top soil, alluvium soil, blast rock, etc) <u>including blast hole drilling & blasting as per requirement</u> , excavation of OB strata, loading & transportation of excavated OB, dumping in dump yard, dozing, grading, leveling at dump sites including face & other specified places, preparation & maintenance of haul roads & dewatering of working faces, water sprinkling on haul road as per instruction of the Engineer-in-charge	1-2	Cu.m	75.76
		2-3	Cu.m	87.76
		3-4	Cu.m	98.46
		4-5	Cu.m	108.19
1 (c)	SOFT OB:	0-1	Cu.m	54.59
	Hiring of HEMM for removal of OB for all kinds of strata not requiring blasting (consisting of top soil, alluvium soil etc.) including excavation of OB, loading & transportation of excavated OB, dumping in dump yard, dozing, grading, leveling at dump sites including face & other specified places, preparation & maintenance of haul roads & dewatering of working faces, water sprinkling on haul road as per instruction of the Engineer-in-charge	1-2	Cu.m	64.63
		2-3	Cu.m	76.05
		3-4	Cu.m	86.22
		4-5	Cu.m	95.47
1 (d)	RE-HANDLING OF OB:	0-1	Cu.m	51.34
	Hiring of HEMM for re-handling of OB for all kinds of soil/ rocks (consisting of top soil, alluvium soil, blast rock, etc) including excavation of OB , loading & transportation of excavated OB, dumping in dump yard, dozing, grading, leveling at dump sites including face & other specified places, preparation & maintenance of haul roads & dewatering of working faces, water sprinkling on haul road as per instruction of the Engineer-in-charge	1-2	Cu.m	60.53
		2-3	Cu.m	70.94
		3-4	Cu.m	80.23
		4-5	Cu.m	88.68

	Hiring of HEMM for Extraction of coal and transportation.			
2	Hiring of HEMM for drilling, blasting, loading, transportation of <u>COAL</u> from to, dozing face and coal dump and other specified places, grading and water sprinkling on haul road, Preparation & maintenance of haul road & dewatering of working faces as per instruction of Engineer In Charge. <i>Note: [Deduction shall be applicable @Rs. 0.67 per tone of non- weightment at weighbridgeat from the SOR rate for the lead under consideration.</i> <i>On award, the applicable rate of deduction shall be in proportion of awarded rate to the SOR rate for that item i.e. [Rs. 0.67 x (awarded rate/ SOR rate)]</i>	0-1	Ton.	44.67
		1-2	Ton.	53.03
		2-3	Ton.	61.32
		3-4	Ton.	69.46
		4-5	Ton.	77.83
3	Hiring of HEMM for extraction of Coal by Surface Miner			
	Hiring of Surface Miners, pay loaders and other allied equipments for cutting of coal / carbonaceous band / shale band, loading by contractor's payloader into contractor's tipping truck at[1]. including grading of coal transportation road,sprinkling of water for dust suppression on the face as per instruction of engineer in charge. <i>[Note: Square parenthesis is for instruction to users and to be deleted from description while preparation of estimates.]</i> <i>[1]:name of quarry face</i>		Ton.	32.89
	Contractual transportation of Coal (Face to surface)			
4(a)	Transportation of coal by suitably covered contractor's tipping trucks from To as per direction of Engineer in charge including weighment at loading end. <i>Note: [Deduction shall be applicable @Rs. 0.67 per tone of non- weightment at weighbridgeat from the SOR rate for the lead under consideration.</i> <i>On award, the applicable rate of deduction shall be in proportion of awarded rate to the SOR rate for that item i.e. [Rs. 0.67 x (awarded rate/ SOR rate)]</i>	0-1	Ton.	11.77
		1-2		20.13
		2-3		28.42
		3-4		36.56
		4-5		44.93
	Contractual transportation of Coal (Surface to Surface)			
4(b)	Transportation of coal by suitably covered contractor's tipping trucks from To as per direction of Engineer in charge		Ton	Refer table

Lead(KM)	Rate (Rs/Ton)	Lead(KM)	Rate (Rs/Ton)
0-1	12.69	20-21	153.09
1-2	18.30	21-22	160.39
2-3	23.92	22-23	166.58
3-4	29.43	23-24	172.83
4-5	35.02	24-25	180.62
5-6	45.74	25-26	187.14
6-7	51.90	26-27	194.43
7-8	58.20	27-28	200.10
8-9	64.22	28-29	206.34
9-10	70.45	29-30	214.70
10-11	80.90	30-31	218.99
11-12	87.85	31-32	226.24
12-13	94.20	32-33	234.65
13-14	100.35	33-34	240.19
14-15	106.63	34-35	248.25
15-16	113.45	35-36	254.45
16-17	119.52	36-37	261.00
17-18	126.42	37-38	267.56
18-19	132.27	38-39	274.83
19-20	138.94	39-40	278.67

Note: Rates in above table are excluding weighment
Rate of weighment is Rs 0.67/Ton/end.
E.g. for transportation with weighment at both ends, Rs. 1.34 per ton shall be added to rate shown in this table for applicable lead.
Accordingly, the description of item shall read as: "Transportation of coal by suitably covered tipping trucks from _____ to _____. Including weighment at both ends as per direction of Engineer-in-charge."

Rate of weighment at weighbridge per end <i>Note: [In case above rate of weighment is included in rate of transportation, deduction shall be applicable per Occasion of non- weighment at weighbridge from the SOR rate</i> <i>On award, the applicable rate of deduction shall be in proportion of awarded rate to the SOR rate for that item i.e. [weighment rate x (awarded rate/ SOR rate)]</i>	Rs. 0.67 / Te
--	----------------------

Additional rates for Contractual transportation of Coal (Surface to Surface) on routes having one railway crossing			
5 (a)	Additional Rates for Transportation of coal by contractor's tipping trucks on routes having one railway crossing <i>Note: Please refer qualifying criteria for hindrances.</i>	0 – 1 hr	Nil
		1 – 2.5 hr	0.23
		2.5 – 5.0 hr	0.59
		More than 5.0 hr	1.23

Additional rates for Contractual transportation of Coal (Surface to Surface) on routes having one bazaar/ village/habitation				
5 (b)	Additional Rates for Transportation of coal by contractor's tipping on routes having one bazaar/ village/habitation situated along roads. <i>Note: Please refer qualifying criteria for hindrances.</i>	Rs. Per Te.		1.47
Additional rates for Contractual transportation of Coal (Surface to Surface) on routes having No entry Restrictions				
5 (c)	Additional Rates for Transportation of coal by contractor's tipping trucks on routes having No Entry restriction <i>Note: Please refer qualifying criteria for hindrances.</i>	0 – 1 hr	Rs. Per Te.	Nil
		1 – 2.5 hr		0.23
		2.5 – 5.0 hr		0.59
		More than 5.0 hr		1.23
5(d)	Additional rate of coal transportation (Surface to Surface) on account of kutcha/narrow road			
	Additional Rates for Transportation of coal by contractor's tipping trucks on routes having kutcha road in transportation route other than siding and coal dump portion. <i>Note: Please refer qualifying criteria for hindrances.</i>	Rs. Per Te. per KM		3.65
6	Loading of Coal by contractor's payloader into contractor's tipping trucks:			
6(a)	Loading of Coal by contractor's payloader into contractor's tipping trucks at SURFACE MINER FACE .		Ton	8.18
6(b)	Loading of Coal by contractor's payloader into contractor's tipping trucks at STOCK PILE (surface stockyard/quarry bed stock/face).		Ton	7.61
6(c)	Loading of Coal by contractor's payloaders into contractors tipping trucks at CRUSHER site .		Ton	5.00
Loading of Coal by contractor's payloader into railway wagons.				
7 (a)	Loading of coal into railway wagons by contractor's payloader(s) at railway siding including levelling of wagons, lime sprinkling at top of railway wagons, cleaning of track etc. as per instruction of engineer in charge.		Ton	7.98
Loading of Coal by contractor's payloader with weightometer into railway wagons.				
7(b)	Loading of coal into railway wagons by contractor's payloader(s) with weightometers at railway siding including leveling of wagons, lime sprinkling at top of railway wagons, cleaning of track etc. as per instruction of engineer in charge.		Ton	8.06

8	Crushing of coal			
	Crushing of coal into (-) 100 mm size (all dimensions) by mobile crusher including receiving coal into mobile crusher, loading of crushed coal into tippers by payloader and installing suitable matching crushing arrangement with all infrastructure. The element includes operation and maintenance of crushing arrangement also.(Electricity and water will be supplied free of cost by CCL).		Ton	11.33

SOR is based on the following considerations:

1. Coal transportation tipper considered in SOR is with net carrying capacity of 14.5 Te per trip.
2. For item 1 and 2 Cost of dewatering of working faces could not be ascertained, hence the rates in item 1 and 2 are excluding the cost of dewatering.
3. **Diesel Base Price :** Rs. 60.50 per Liter
4. **High power committee wages** of CIL for contractors workers engaged in mining activities with effect from 1.10.2017(High Power Wage Committee report: Notification No: CIL/C-5B/JBCCI/HPC/VDA/456 dated 4/5.01.2018)

Categories of employees	Rate of Wages including VDA 9 in Rs. per day w.e.f. 01.10.2017
Unskilled	464.00+45.00 = 509.00
Semi skilled / Unskilled Supervisory	494.00+56.00 = 550.00
Skilled	524.00+67.00 = 591.00
Highly skilled	554.00+78.00 = 632.00

5. **Base month for wholesale price index (WPI) / Consumer Price Index (CPI) :** October 2017
6. **Qualifying Criteria for application of additional payment clause due to hindrances in coal transportation:**

Payment of additional rates in transportation of coal arising due to various hindrances present in coal transportation route will be subjected to qualifying criteria as mentioned below:

A. Hindrance caused due to presence of bazaar/village in coal transportation route:

- **Bazaar/ Village** situated along roads in coal transportation routes having road width less than 7.0 meters and length more than 200 meters along the road length will only be considered as hindrance for application of payment of additional rates.
- Payment shall be made at applicable rates as mentioned in SOR for each bazaar/ village falling in coal transportation route.

B. Hindrance caused due to enforcement of No Entry / Route restriction :

Hindrance caused due to enforcement of No entry/ route restriction will be subjected to the following criterion:

- Entry restriction / 'No entry' notified by the Govt./District authorities will only be treated as hindrance.
- No entry or route restriction of duration upto one hour (sixty Minutes); will not be considered as hindrance.
- Additional payment shall be made for each such hindrance. For reference of applicable rate in SOR, the duration of no entry shall be rounded off to nearest complete hour.

C. Hindrance caused on account of existence of Kutcha road in route :

Hindrance caused on account of existence of Kutcha road in route will be subjected to the following criterion:

- Additional rate on account of existence of Kutcha road in transportation route shall be applicable if portion of kutcha road in transportation route other than siding and coal dump portion is more than 1 km. WBM road /Black top roads /Metalled /PCC roads shall not be considered as kutcha road.

Note: It may be noted here that most of the hindrances mentioned above are due to current prevailing road conditions and local issues which is quite dynamic in nature. Hence the additional rates provided in SOR presented above may be applied till such problems continue to exist. However, it must be reviewed from time to time (say every six months/ 1 year) to assess the current level of hindrances.

In case rate of coal transportation includes additional rates on account of hindrances, NIT shall mention details of such hindrances considered and their rates.

NIT shall also mention that when any of hindrance(s) included in estimate is withdrawn/reduced after award/during execution, deduction shall be applicable from

awarded rate of the transportation item @ (rate of hindrance considered in estimated rates to the extent reduced or withdrawn) x (awarded rate /SOR rate of the transportation item). The continuance/reduction/withdrawal of hindrance shall be certified by Engineer- in Charge.

Impact of Diesel and Wage rates changes on SOR:

The SOR is based on the current diesel and wages rates along with other costs.

However, the impact on SOR because of changes in diesel and wage rates may be worked out as below:

Fractional change in HEMM hiring rates is proportional to fractional change in diesel rates:

$$\Delta R / R \propto \Delta D / D \text{ ----- (1)}$$

Fractional change in HEMM hiring rates is proportional to fractional change in wage rates:

$$\Delta R / R \propto \Delta W / W \text{ -----(2)}$$

Combining relations 1 & 2:

$$(R/R_0) \times 100 = aD/D_0 + bW/W_0 + c \text{ -----(3)}$$

Where,

R_0 , D_0 & W_0 are base rates of HEMM hiring, diesel and that of wages respectively.

R , D and W are corresponding changed rates for HEMM hiring, diesel and that of wages respectively

And **a**, **b** & **c** are arbitrary constants.

The values of **a**, **b** & **c** in the equation 3 may be referred from the table below:

Note: The above formulae is for updation of SOR rate.

F-2-S coal transportation (with weighment at one end):

Lead	a	b	c
0-1	32.29	27.74	39.98
1-2	45.74	20.27	33.99
2-3	52.05	17.28	30.67
3-4	55.51	15.66	28.82
4-5	57.27	14.87	27.86

S-2-S coal transportation:

Lead	a	b	c
0-1	44.03	23.66	32.31
1-2	45.01	21.89	33.10
2-3	45.38	20.81	33.81
3-4	45.72	20.19	34.09
4-5	46.07	19.83	34.09
5-6	46.26	19.50	34.23
6-7	46.36	19.21	34.43
7-8	46.54	19.11	34.35
8-9	46.59	19.01	34.40
9-10	46.73	18.82	34.46
10-11	46.75	18.70	34.54
11-12	46.81	18.64	34.56
12-13	46.95	18.57	34.48
13-14	47.06	18.55	34.39
14-15	47.14	18.52	34.34
15-16	47.08	18.40	34.52
16-17	47.25	18.48	34.26
17-18	47.26	18.40	34.35
18-19	47.46	18.39	34.14
19-20	47.47	18.40	34.13
20-21	47.58	18.38	34.04
21-22	47.60	18.34	34.06
22-23	47.79	18.38	33.83
23-24	47.68	18.33	33.99
24-25	47.74	18.28	33.98
25-26	47.75	18.28	33.97
26-27	47.80	18.27	33.93
27-28	47.81	18.27	33.92
28-29	47.90	18.26	33.84
29-30	47.84	18.28	33.88
30-31	48.02	18.29	33.69
31-32	48.06	18.29	33.65
32-33	47.93	18.22	33.84
33-34	47.96	18.22	33.82
34-35	48.11	18.27	33.61
35-36	48.15	18.26	33.59
36-37	48.17	18.25	33.58
37-38	48.13	18.26	33.61
38-39	48.16	18.23	33.61
39-40	48.20	18.23	33.57

Note: For higher leads the constants mentioned for the last lead of respective table (e.g. 39- 40 for S2S) shall be used.

F-2-S Hard OB transportation:

Lead	a	b	c
0-1	61.78	9.77	28.45
1-2	62.81	8.72	28.48
2-3	64.19	7.80	28.00
3-4	64.95	7.39	27.66
4-5	64.37	7.29	28.34

F-2-S Composite OB Transportation:

Lead	a	b	c
0-1	63.09	9.42	27.49
1-2	63.86	8.47	27.67
2-3	65.05	7.68	27.27
3-4	65.67	7.26	27.08
4-5	64.99	7.15	27.86

F-2-S Soft OB transportation:

Lead	a	b	c
0-1	63.63	9.24	27.13
1-2	64.29	8.37	27.34
2-3	65.38	7.55	27.07
3-4	65.97	7.21	26.82
4-5	65.26	7.17	27.57

F-2-S dumped OB transportation/Re-handling of OB:

Lead	a	b	c
0-1	63.09	9.42	27.49
1-2	63.86	8.47	27.67
2-3	65.05	7.68	27.27
3-4	65.67	7.26	27.08
4-5	64.99	7.15	27.86

Loading of coal with pay loaders:

Position	a	b	c
Crusher	61.41	12.61	25.98
Stockpile	61.01	12.58	26.41
Surface miner	61.05	12.66	26.29
Wagon Loading	40.82	20.97	38.21
Wagon loading weightometer	41.25	20.45	38.30

Electric crusher:

Position	a	b	c
Crusher	0.00	13.55	86.45

Dozer:

Position	a	b	c
Hard/ Composite/ Soft/ Dumped OB	61.36	3.27	35.37
Coal	61.36	3.27	35.37

Chain Drill:

Position	a	b	c
Hard/Composite OB	42.64	4.79	52.58
Coal	42.64	4.87	52.49

Excavator:

Position	a	b	c
Hard OB	65.80	5.33	28.87
Composite OB	65.72	5.17	29.11
Soft OB	65.76	3.29	30.95
Dumped OB	65.91	5.43	28.66
Coal	61.13	5.90	32.97

Grader:

Position	a	b	c
Hard OB	50.48	16.73	32.79
Composite OB	50.48	16.73	32.79
Soft OB	50.48	16.73	32.79
Dumped OB	50.48	16.73	32.79
Coal	50.40	16.55	33.04

Water Sprinkler:

Position	a	b	c
Hard/Composite/Soft/ Dumped OB	73. 81	13. 95	12. 23
Coal	73. 81	13. 95	12. 23

Surface miner:

Position	a	b	c
Coal	39.59	4.60	55.81

Extrapolation/Interpolation equation for SOR:

The SORs given in the **annexure** have been devised for different leads with **discrete** slab width of 1 km. However, the SOR may be calculated for respective items from the following equations:

1. **For contractual transportation of coal- Face to Surface:**

$$y = 8.28x + 2.87 \quad \text{for lead } 0 < x < 5 \text{ km} \text{ -----(1)}$$

For contractual transportation of coal-Surface to Surface:

$$y = 6.70x + 12.68 \quad \text{for lead more than 40 km}$$

[Note: Rates obtained from above formula are excluding cost of weightment]

2. **For coal extraction and transportation- Face to Surface:**

$$y = 8.23x + 36.43 \quad \text{for lead } 0 < x < 5 \text{ km} \text{ -----(2)}$$

3. **For OB Removal and transportation (for leads $0 < x < 5$ km):**

a. Hard OB : $y = 11.18x + 59.43$ -----(3 a)

b. Composite OB : $y = 10.87x + 54.45$ -----(3 b)

c. Soft OB : $y = 10.33x + 44.38$ -----(3c)

d. OB Rehandling : $y = 9.44x + 42.03$ -----(3d)

In all the formula mentioned at sl. 1, sl 2 & sl 3 above, while calculating the rate for any lead slab, end point lead shall be taken .E.g. for lead slab 3 -4 Km, the lead would be 4 km. The same shall apply for all lead slabs mentioned anywhere else in the abstract.

4. **Formulae for extrapolation of awarded rate:**

(i) $R_2 = R_1 + [\text{SOR rate at } D_2 - \text{SOR rate at } D_1] \times (\text{Awarded rate at } D_1)$

SOR at D_1

Where R_1 = Awarded Rate

D_1 = Awarded Lead

D_2 = New Lead

R_2 = Desired awarded rate at New lead D_2

5. **Equipment wise breakup of rate of item no. 1 (Removal and transportation of OB & item 2 (Extraction & Transportation of coal):**

Breakup of rates for item 1: Hiring of HEMM for Removal and Transportation of OB						
item 1(a): Removal & Transportation of hard OB (Rs. Per cu.m)						
Sl No.	Description	0-1	1-2	2-3	3-4	4-5
1	Drilling and Blasting	6.29	6.29	6.29	6.29	6.29
2	Excavation	25.71	25.71	25.71	25.71	25.71
3	Dozing	6.94	6.94	6.94	6.94	6.94
5	Water Sprinkling	3.26	3.26	3.26	3.26	3.26
6	Grading of roads	2.53	2.53	2.53	2.53	2.53
4	Transportation	25.71	36.63	49.01	59.97	69.97
Total SOR		70.44	81.36	93.74	104.70	114.70

item 1(b): Removal & Transportation of Composite OB (Rs. Per cu.m)						
Sl No.	Description	0-1	1-2	2-3	3-4	4-5
1	Drilling and Blasting	6.29	6.29	6.29	6.29	6.29
2	Excavation	21.91	21.91	21.91	21.91	21.91
3	Dozing	6.78	6.78	6.78	6.78	6.78
5	Water Sprinkling	3.18	3.18	3.18	3.18	3.18
6	Grading of roads	2.48	2.48	2.48	2.48	2.48
4	Transportation	24.54	35.12	47.12	57.82	67.55
Total SOR		65.18	75.76	87.76	98.46	108.19

item 1(c): Removal & Transportation of Soft OB (Rs. Per cu.m)						
Sl No.	Description	0-1	1-2	2-3	3-4	4-5
1	Excavation	19.68	19.68	19.68	19.68	19.68
2	Dozing	6.40	6.40	6.40	6.40	6.40
3	Water Sprinkling	3.01	3.01	3.01	3.01	3.01
4	Grading of roads	2.34	2.34	2.34	2.34	2.34
5	Transportation	23.16	33.20	44.62	54.79	64.04
Total SOR		54.59	64.63	76.05	86.22	95.47

item 1(d): Removal & Transportation of Re-handling OB (Rs. Per cu.m)						
Sl No.	Description	0-1	1-2	2-3	3-4	4-5
1	Excavation	19.02	19.02	19.02	19.02	19.02
2	Dozing	5.87	5.87	5.87	5.87	5.87
3	Water Sprinkling	3.01	3.01	3.01	3.01	3.01
4	Grading of roads	2.14	2.14	2.14	2.14	2.14
5	Transportation	21.30	30.49	40.91	50.19	58.64
Total SOR		51.34	60.53	70.95	80.23	88.68

Breakup of rates for item 2: Hiring of HEMM for Extraction and Transportation of COAL (Rs/Te)						
Sl No.	Description	0-1	1-2	2-3	3-4	4-5
1	Drilling and Blasting	3.93	3.93	3.93	3.93	3.93
2	Excavation	17.65	17.65	17.65	17.65	17.65
3	Dozing	6.17	6.17	6.17	6.17	6.17
5	Water Sprinkling	2.90	2.90	2.90	2.90	2.90
6	Grading of roads	2.25	2.25	2.25	2.25	2.25
4	Transportation	11.77	20.13	28.42	36.56	44.93
Total SOR		44.67	53.03	61.32	69.46	77.83

Note: For item 1 & item 2, lead is in Km.